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STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION **DIVISION OF HIGHWAYS** GEOTECHNICAL ENGINEERING UNIT

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DESCRIPTION

SITE PHOTOGRAPHS

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY <u>RAN</u>DOLPH

PROJECT DESCRIPTION BRIDGE NO. 18 OVER BETTIE McGEE'S CREEK ON SR 1107 (LASSITER MILL ROAD)

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4794	1	19

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 707-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (IN-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE DBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTICATIONS ARE AS RECORDED AT THE TIME OF THE INVESTICATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MOY LOWER CONDITIONS INCLUDING CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS, AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HINSELF AS TO CONDITIONS TO BE ENCOUNTERED OF PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

- NOTES:

 1. THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS ACCURATE NOR IS IT CONSIDERED PART OF THE PLANS, SPECIFICATIONS OR CONTRACT FOR THE PROJECT.

 2. BY HAVING REQUESTED THIS INFORMATION, THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

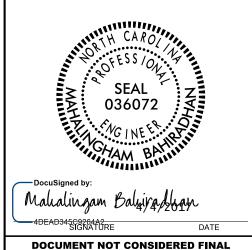
PERSONNEL M. BAHIRADHAN J. WHITT C. BUTLER F&R

DRAWN BY C. BUTLER

INVESTIGATED BY J. WHITT

CHECKED BY M. BAHIRADHAN SUBMITTED BY SCHNABEL ENG.

DATE MARCH 2017



UNLESS ALL SIGNATURES COMPLETED

PROJECT REPERENCE NO. SHEET NO. 2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION	GRADATION	ROCK DESCRIPTION HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED. AN INFERRED	TERMS AND DEFINITIONS
SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT	WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORMLY GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE.	ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL.	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING:	GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.	SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN	AQUIFER - A WATER BEARING FORMATION OR STRATA.
CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH	ANGULARITY OF GRAINS	REPRESENTED BY A ZONE OF WEATHERED ROCK.	ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.
AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE, VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6	THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS:	ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:	ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC.
SOIL LEGEND AND AASHTO CLASSIFICATION	ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.	WEATHERED NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.	ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT
GENERAL GRANULAR MATERIALS SILT-CLAY MATERIALS ORGANIC MATERIALS	MINERALOGICAL COMPOSITION	CRYSTALLINE FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT	WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND
LLASS. (\$ 30% PASSING "200) (> 30% PASSING "200)	MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.	ROCK (CR) WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.	SURFACE.
GROUP A-1 A-3 A-2 A-4 A-5 A-6 A-7 A-1, A-2 A-4, A-5 CLASS. A-1-a A-1-b A-2-4 A-2-5 A-2-6 A-2-7 A-2-7 A-3 A-6, A-7	COMPRESSIBILITY	FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN	CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
000000000000000000000000000000000000000	SLIGHTLY COMPRESSIBLE LL < 31	ROCK (NCR) SEDIMENTARY ROCK THAT WOULD YEILD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.	COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.
SYMBOL 000000000000000000000000000000000000	MODERATELY COMPRESSIBLE LL = 31 - 50 HIGHLY COMPRESSIBLE LL > 50	COASTAL PLAIN COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SEDIMENTARY ROCK SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED	CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED
7. PASSING SILT- SILT- MUCK,	PERCENTAGE OF MATERIAL	(CP) SHELL BEDS, ETC.	BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.
*40 30 MX 50 MX 51 MN SOILS COLS PEAT		WEATHERING	DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.
*200 15 MX 25 MX 10 MX 35 MX 35 MX 35 MX 36 MN 36 MN 36 MN 36 MN 36 MN	ORGANIC MATERIAL SOILS SOILS OTHER MATERIAL	FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER	<u>DIP</u> - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE
MATERIAL PASSING *40	TRACE OF ORGANIC MATTER 2 - 3%, 3 - 5%, TRACE 1 - 10%, LITTLE ORGANIC MATTER 3 - 5%, 5 - 12%, LITTLE 10 - 20%	HAMMER IF CRYSTALLINE.	HORIZONTAL.
LL 40 MX 41 MN 40 MX 41 MN 40 MX 41 MN 40 MX 41 MN 50ULS WITH	MODERATELY ORGANIC 5 - 10% 12 - 20% SOME 20 - 35%	VERY SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN, (V SLI.) CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF	DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE
PI 6 MX NP IB MX IB MX II MN II MN IB MX II MN II MN MODERATE NOCANIC	HIGHLY ORGANIC > 10% > 20% HIGHLY 35% AND ABOVE	OF A CRYSTALLINE NATURE.	LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.
GROUP INDEX 0 0 0 4 MX 8 MX 12 MX 16 MX NO MX AMOUNTS OF SOILS	GROUND WATER	SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO	FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.
OF MAIOR GRAVELAND FINE SILTY OR CLAYEY SILTY CLAYEY MATTER	▼ WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING	(SLI.) I INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.	FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.
MATERIALS SAND SAND GRAVEL AND SAND SOILS SOILS	▼ STATIC WATER LEVEL AFTER 24 HOURS	MODERATE SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS, IN	FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM
GEN.RATING EXCELLENT TO GOOD FAIR TO POOR POOR UNSUITABLE		(MOD.) GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED	PARENT MATERIAL.
AS SUBURADE PUOR	O→M⊶ SPRING OR SEEP	WITH FRESH ROCK.	FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.
PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ;PI OF A-7-6 SUBGROUP IS > LL - 30	<u> </u>	MODERATELY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED, IN GRANITOID ROCKS, ALL FELDSPARS DULL	FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.
CONSISTENCY OR DENSENESS RANGE OF STANDARD RANGE OF UNCONFINED	MISCELLANEOUS SYMBOLS	SEVERE AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH (MOD. SEV.) AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES 'CLUNK' SOUND WHEN STRUCK.	JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.
PRIMARY SOIL TYPE COMPACTNESS OR PENETRATION RESISTENCE COMPRESSIVE STRENGTH	ROADWAY EMBANKMENT (RE) 25/025 DIP & DIP DIRECTION	IF TESTED, WOULD YIELD SPT REFUSAL	LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO
(N-VALUE) (TUNS/FT-)	₩ITH SOIL DESCRIPTION → OF ROCK STRUCTURES	SEVERE ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED, ROCK FABRIC CLEAR AND EVIDENT BUT	ITS LATERAL EXTENT.
GENERALLY VERY LOOSE < 4 CONTROL OF THE CONTROL OF	SOIL SYMBOL Opt Dat test Boring SLOPE INDICATOR INSTALLATION	(SEV.) REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN.	LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.
MATERIAI MEDIUM DENSE 10 TO 30 N/A	M	<u>IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF</u>	MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.
DENSE 30 TO 50	ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT AUGER BORING CONE PENETROMETER TEST	VERY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE SEVERE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK	PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE
VERY SOFT < 2 < 0.25	— INFERRED SOIL BOUNDARY — CORE BORING SOUNDING ROD	(V SEV.) REMAINING, SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR	OF AN INTERVENING IMPERVIOUS STRATUM.
GENERALLY SOFT 2 TO 4 0.25 TO 0.5	MW -	VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. <u>IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF</u>	RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.
SILT-CLAY MEDIUM STIFF 4 TO 8 0.5 TO 1.0 MATERIAL STIFF 8 TO 15 1 TO 2	MONITORING WELL WITH CORE	COMPLETE ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS	ROCK QUALITY DESIGNATION (ROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF
(COHESIVE) VERY STIFF 15 TO 30 2 TO 4	TTTTT ALLUVIAL SOIL BOUNDARY A PIEZOMETER NSTALLATION - SPT N-VALUE	ALSO AN EXAMPLE.	ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.
HARD > 30 > 4	INSTREERITOR	ROCK HARDNESS	SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT
TEXTURE OR GRAIN SIZE	RECOMMENDATION SYMBOLS	VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK, BREAKING OF HAND SPECIMENS REQUIRES	ROCK.
U.S. STD. SIEVE SIZE 4 10 40 60 200 270 OPENING (MM) 4.76 2.00 0.42 0.25 0.075 0.053	UNDERCUT UNCLASSIFIED EXCAVATION - UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE	SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.	SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO
COARCE EINE	LICED IN THE TOP 2 EFET OF	HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY, HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.	THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.
BOULDER COBBLE GRAVEL SAND SAND (SL) (CL)	UNDERCOT LCG HOLE DEGRAPHED NOCK	MODERATELY CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE	SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT
(CSE, SU.) (F SU.)	ABBREVIATIONS	HARD EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED	OR SLIP PLANE,
GRAIN MM 305 75 2.0 0.25 0.005 0.005 SIZE IN. 12 3	AR - AUGER REFUSAL MED MEDIUM VST - VANE SHEAR TEST BT - BORING TERMINATED MICA, - MICACEOUS WEA, - WEATHERED	BY MODERATE BLOWS.	STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL
	CL CLAY MOD MODERATELY γ - UNIT WEIGHT	MEDIUM CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. HARD CAN BE EXCAVATED IN SMALL CHIPS TO PEICES I INCH MAXIMUM SIZE BY HARD BLOWS OF THE	WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER, SPT REFUSAL IS PENETRATION EQUAL
SOIL MOISTURE - CORRELATION OF TERMS	$oxed$ CPT - CONE PENETRATION TEST NP - NON PLASTIC $\gamma_{ m d}$ - DRY UNIT WEIGHT	POINT OF A GEOLOGIST'S PICK.	TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.
SOIL MOISTURE SCALE FIELD MOISTURE GUIDE FOR FIELD MOISTURE DESCRIPTION (ATTERBERG LIMITS) DESCRIPTION	CSE COARSE ORG ORGANIC DMT - DILATOMETER TEST PMT - PRESSUREMETER TEST SAMPLE ABBREVIATIONS	SOFT CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN	STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.
	DPT - DYNAMIC PENETRATION TEST SAP SAPROLITIC S - BULK	PIECES CAN BE BROKEN BY FINGER PRESSURE.	STRATA ROCK QUALITY DESIGNATION (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL
- SATURATED - USUALLY LIQUID; VERY WET, USUALLY (SAT,) FROM BELOW THE GROUND WATER TABLE	e - VOID RATIO SD SAND, SANDY SS - SPLIT SPOON F - FINE SL SILT, SILTY ST - SHELBY TUBE	VERY CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH	LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.
LL L LIOUID LIMIT	FOSS FOSSILIFEROUS SLI SLIGHTLY RS - ROCK	SOFT OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE, CAN BE SCRATCHED READILY BY FINGERNAIL.	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
PLASTIC SEMISOLID: REQUIRES DRYING TO SEMISOLID: REQUIRES	FRAC FRACTURED, FRACTURES TCR - TRICONE REFUSAL RT - RECOMPACTED TRIAXIAL FRAGS FRAGMENTS W - MOISTURE CONTENT CBR - CALIFORNIA BEARING	FRACTURE SPACING BEDDING	
(PI) PL PLASTIC LIMIT ATTAIN OPTIMUM MOISTURE	FRAGS FRAGMENTS ω - MOISTURE CONTENT CBR - CALIFORNIA BEARING HI HIGHLY V - VERY RATIO	TERM SPACING BEDUING IERM SPACING IERM IHICKNESS	BENCH MARK: BMI: RAILROAD SPIKE IN BASE OF 18' POPLAR TREE N:678460 E:1715832 (-BL-) STA 9+95.7 76' RT)
	EQUIPMENT USED ON SUBJECT PROJECT	VERY WIDE MORE THAN 10 FEET VERY THICKLY BEDDED 4 FEET	N:6/8460 E:1/15832 (-BL-) STA 9+95.7 (6' RT) ELEVATION: 397.85 FEET
OM OPTIMUM MOISTURE - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE	DRILL UNITS: ADVANCING TOOLS: HAMMER TYPE:	WIDE 3 TO 10 FEET THICKLY BEDDED 1.5 - 4 FEET MODERATELY CLOSE 1 TO 3 FEET THINLY BEDDED 0.16 - 1.5 FEET	
SL _ SHRINKAGE LIMIT	CME-45C CLAY BITS X AUTOMATIC MANUAL	CLOSE 0.16 TO 1 FOOT VERY THINLY BEDDED 0.03 - 0.16 FEET	NOTES:
- DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE	6* CONTINUOUS FLIGHT AUGER	VERY CLOSE LESS THAN 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET THINLY LAMINATED < 0.008 FEET	FIAD = FILLED IN AFTER DRILLING
1.1.1.1.1	CME-55	INDURATION	
PLASTICITY		FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.	
PLASTICITY INDEX (PI) DRY STRENGTH NON PLASTIC Ø-5 VERY LOW	X CME-550	DUDDING WITH FINCED EDEER NUMEDONG COAING.	
SLIGHTLY PLASTIC 6-15 SLIGHT	I VANE SHEAR TEST □ □ HAND TOOLS•	FRIABLE GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.	
MODERATELY PLASTIC 16-25 MEDIUM HIGHLY PLASTIC 26 OR MORE HIGH	CASING W/ ADVANCER POST HOLE DIGGER	MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE;	
	PORTABLE HOIST TRICONE STEEL TEETH HAND AUGER	BREAKS EASILY WHEN HIT WITH HAMMER.	
COLOR	TRICONE TUNGCARB. X SOUNDING ROD	INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.	
DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY).	CORE BIT VANE SHEAR TEST		
	·	SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE;	
MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.	X HOLLOW STEM AUGERS .	EXTREMELY INDURATED SAMPLE BREAKS ACROSS GRAINS.	DATE: 8-15-14

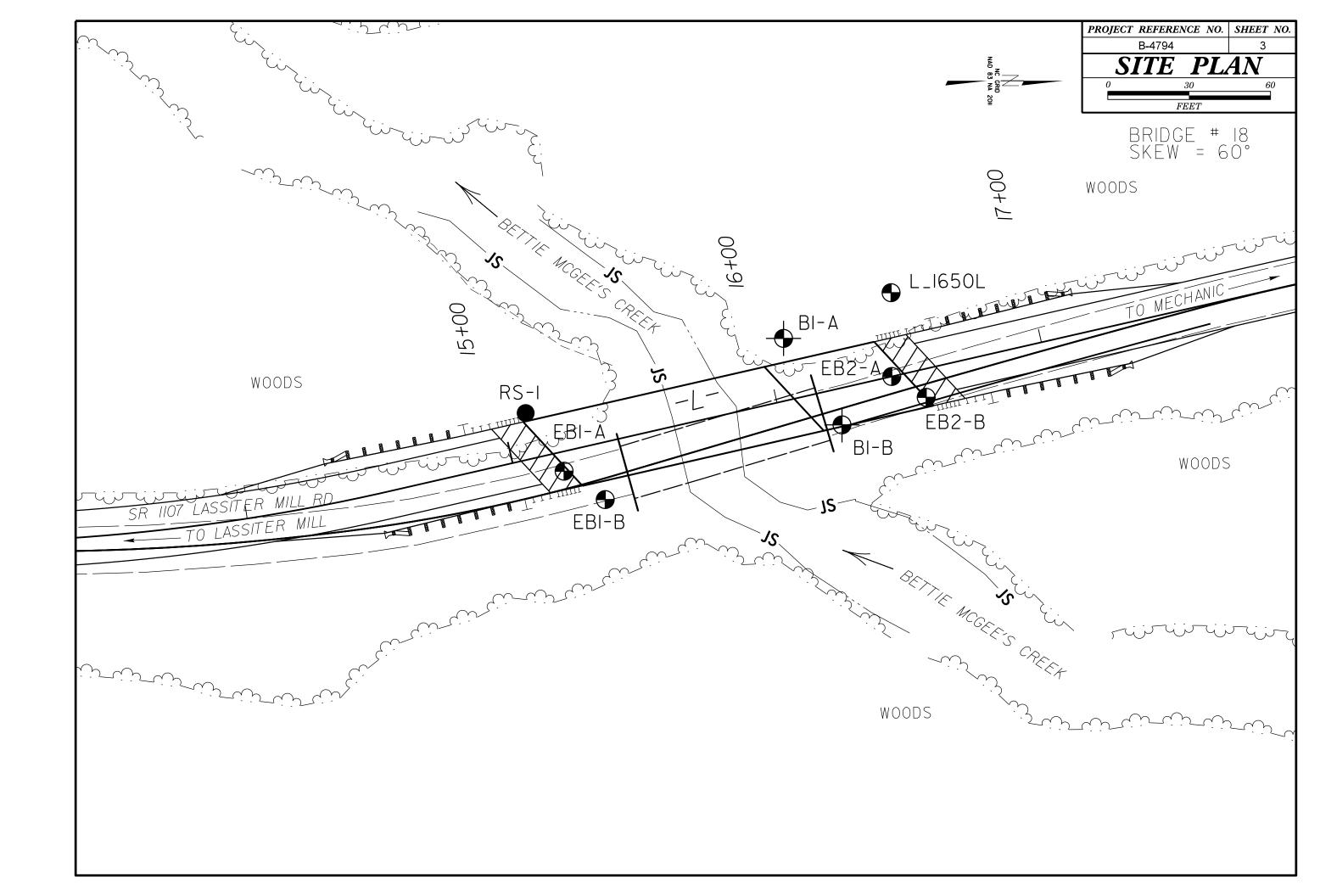
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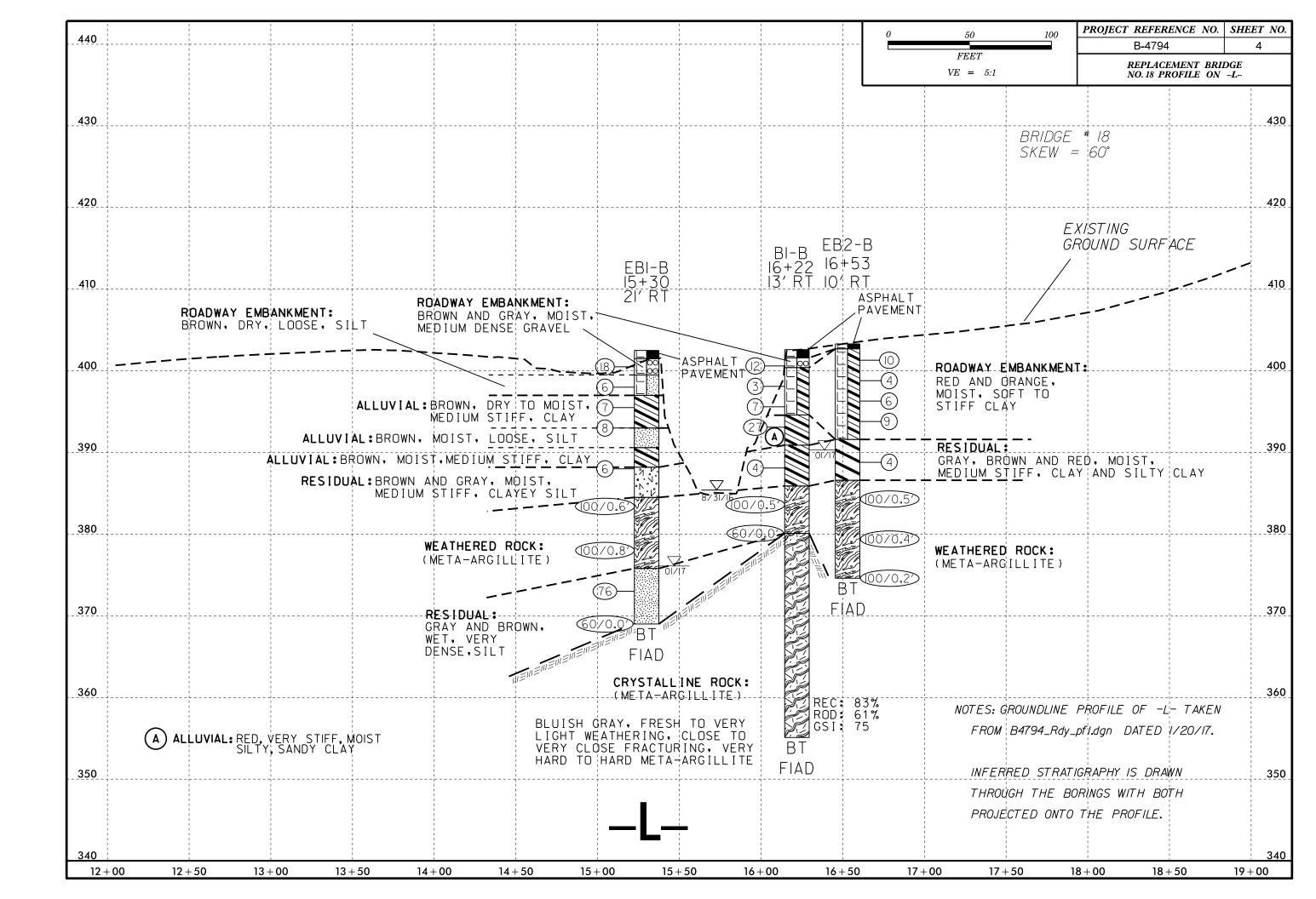
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT

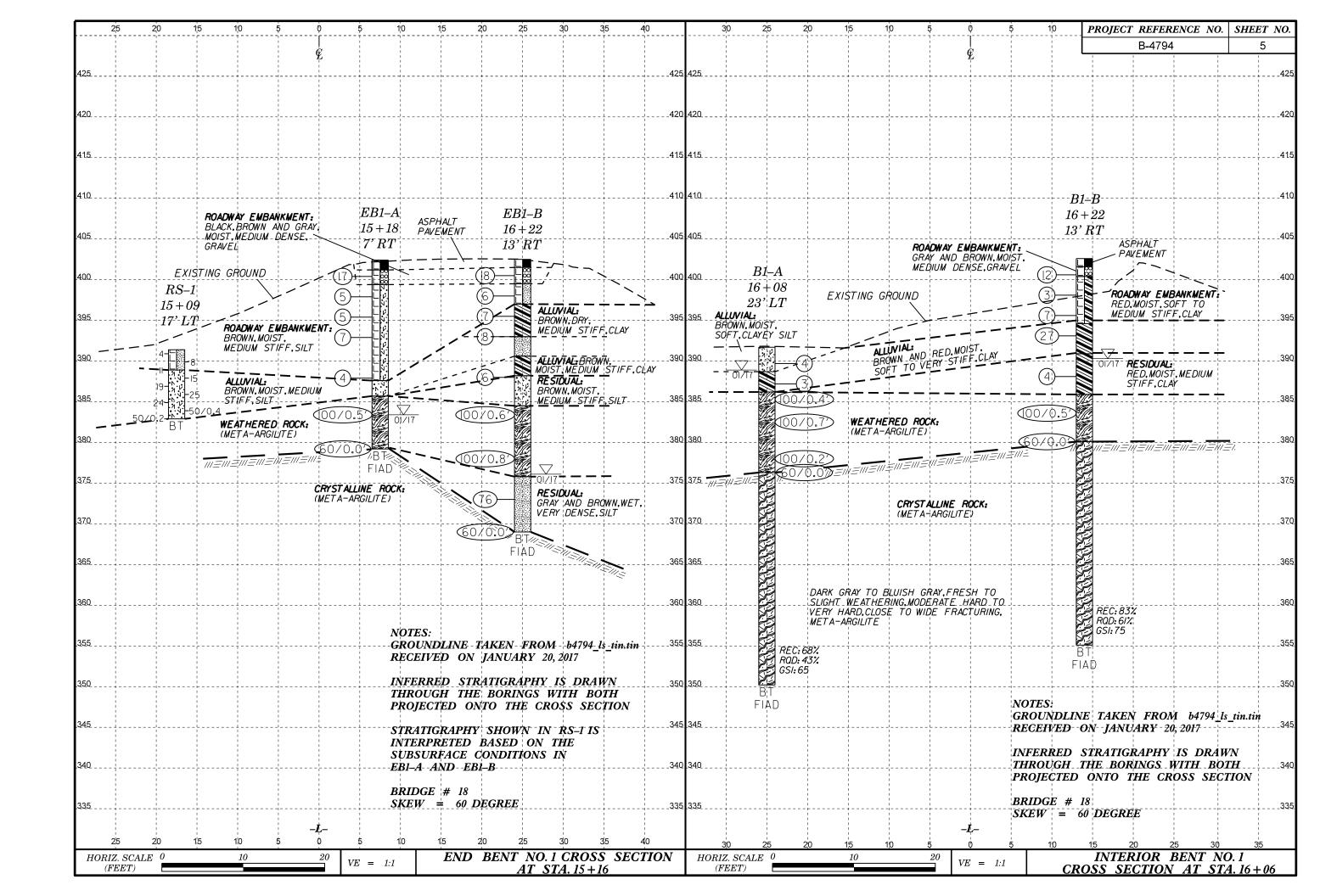
SUBSURFACE INVESTIGATION

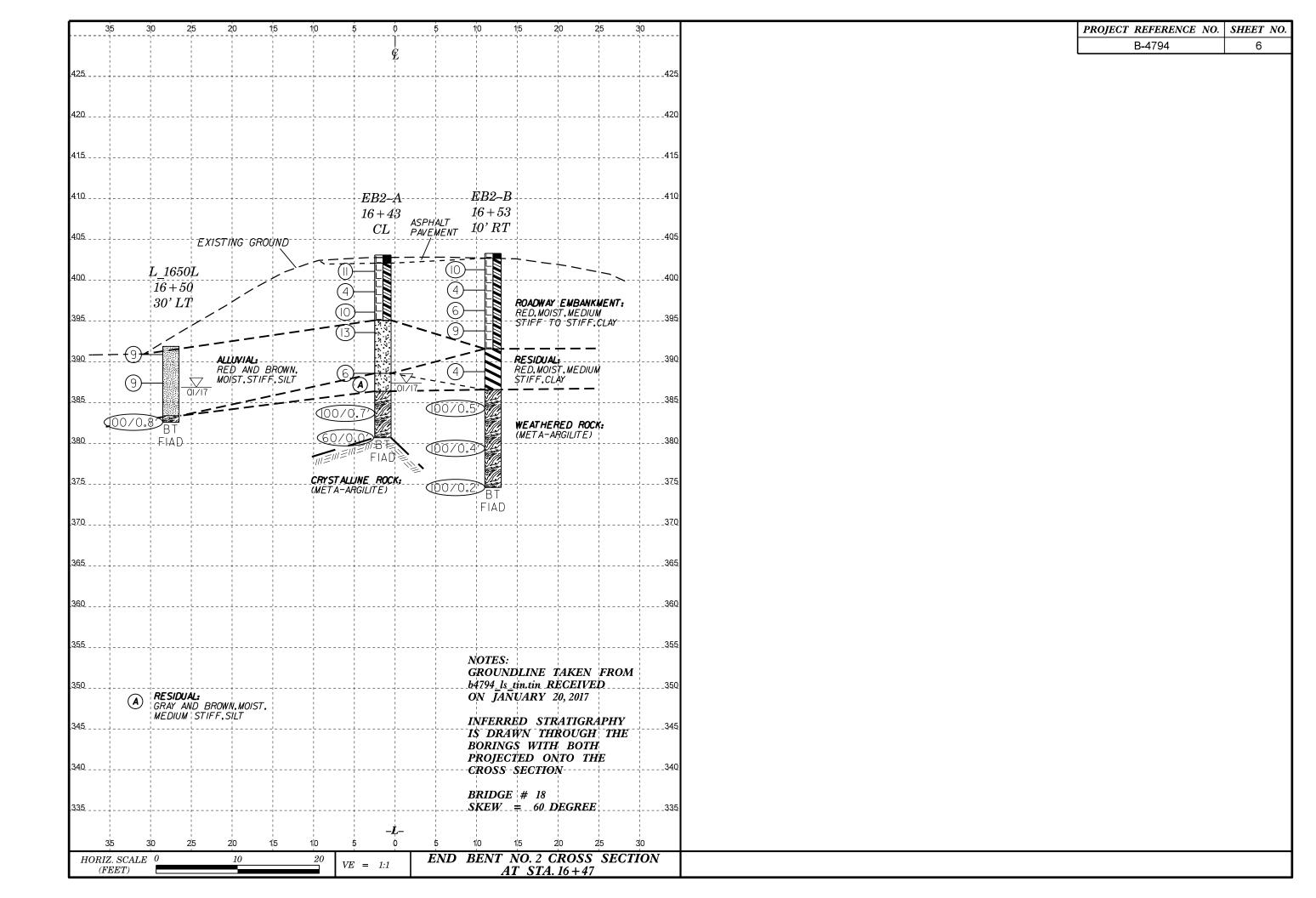
SUPPLEMENTAL LEGEND, GEOLOGICAL STRENGTH INDEX (GSI) TABLES

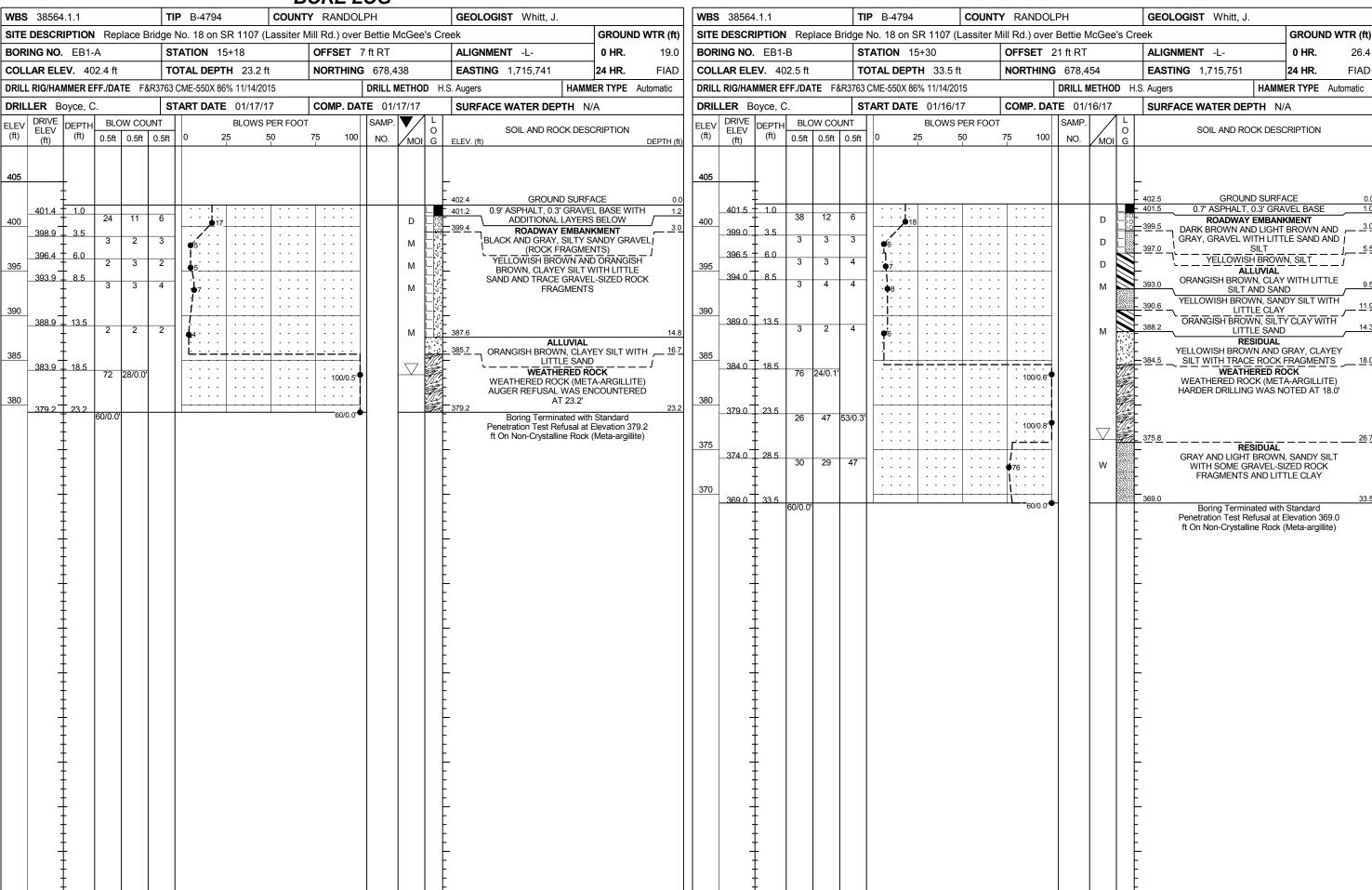
AASHTO LRFD Figure 10.4.6.4-1 — Determination of GSI for Joint	ed Rock Ma	FRO	OM AAS	HTO ĹRF.	D BRID	AL STRENGTH INDEX (GSI) TABLES GE DESIGN SPECIFICATIONS AASHTO LRFD Figure 10.4.6.4-2 — Determination of GSI for Tectonically Deformed Heterogeneous Rock Masses (Marinos and Hoek, 2000)
GEOLOGICAL STRENGTH INDEX (GSI) FOR JOINTED ROCKS (Hoek and Marinos, 2000) From the lithology, structure and surface conditions of the discontinuities, estimate the average value of GSI. Do not try to be too precise. Quoting a range from 33 to 37 is more realistic than stating that GSI = 35. Note that the table does not apply to structurally controlled failures. Where weak planar structural planes are present in an unfavorable orientation with respect to the excavation face, these will dominate the rock mass behaviour. The shear strength of surfaces in rocks that are prone to deterioration as a result of changes in moisture content will be reduced if water is	URFACE CONDITIONS	Very rough, fresh unweathered surfaces Very rough, fresh unweathered surfaces COOD Surfaces Surfaces	FAIR Smooth, moderately weathered and altered surfaces	POOR Slickensided, highly weathered surfaces with compact coatings or fillings or angular fragments	VERY POOR Slickensided, highly weathered surfaces with soft clay coatings or fillings	GSI FOR HETEROGENEOUS ROCK MASSES SUCH AS FLYSCH (Marinos P and Hoek E., 2000) From a description of the lithology, structure and surface conditions (particularly of the bedding planes), choose a box in the chart. Locate the position in the box that corresponds to the condition of the discontinuities and estimate the average value of GSI from the contours. Do not attempt to be too precise. Quoting a range from 33 to 37 is more realistic than giving GSI = 35. Note that the Hoek-Brown criterion does not apply to structurally controlled failures. Where unfavourabil oriented continuous weak planar discontinuities are present, these will dominate the behaviour of the rock mass. The strength of some rock masses is reduced by the presence of groundwater and this can be allowed for by a slight shift to the right in the columns for fair, poor and very poor conditions. Water pressure does not change the value of GSI and it is dealt with by using effective stress analysis. COMPOSITION AND STRUCTURE
INTACT OR MASSIVE - intact rock specimens or massive in situ rock with few widely spaced discontinuities	PIECES 06			N/A	N/A	A. Thick bedded, very blocky sandstone The effect of pelitic coatings on the bedding planes is minimized by the confinement of the rock mass. In shallow tunnels or slopes these bedding planes may cause structurally controlled instability.
BLOCKY - well interlocked undisturbed rock mass consisting of cubical blocks formed by three intersecting discontinuity sets VERY BLOCKY - interlocked, partially disturbed mass with multi-faceted angular blocks formed by 4 or more joint sets	OCKING OF ROCK	70 60				B. Sand- stone with thin inter- layers of siltstone amounts C. Sand- stone and siltstone or silty shale with sand- stone layers shale with sandstone layers
BLOCKY/DISTURBED/SEAMY - folded with angular blocks formed by many intersecting discontinuity sets. Persistence of bedding planes or schistosity	ASING INTERL		40	30		C. D. E. and G - may be more or less folded than illustrated but this does not change the strength. Tectonic deformation, faulting and loss of continuity moves these categories to F and H. F. Tectonically deformed, intensively folded/faulted, sheared clayey shale or siltstone with broken and deformed sandstone layers forming an almost chaotic structure
DISINTEGRATED - poorly inter- locked, heavily broken rock mass with mixture of angular and rounded rock pieces	BCCR.			20	10 /	G. Undisturbed silty or clayey shale with or without a few very thin sandstone layers H. Tectonically deformed silty or clayey shale with pockets of clay. Thin layers of sandstone are transformed into small rock pieces.
LAMINATED/SHEARED - Lack of blockiness due to close spacing of weak schistosity or shear planes	1	N/A N/A			/	─────────────────────────────────────

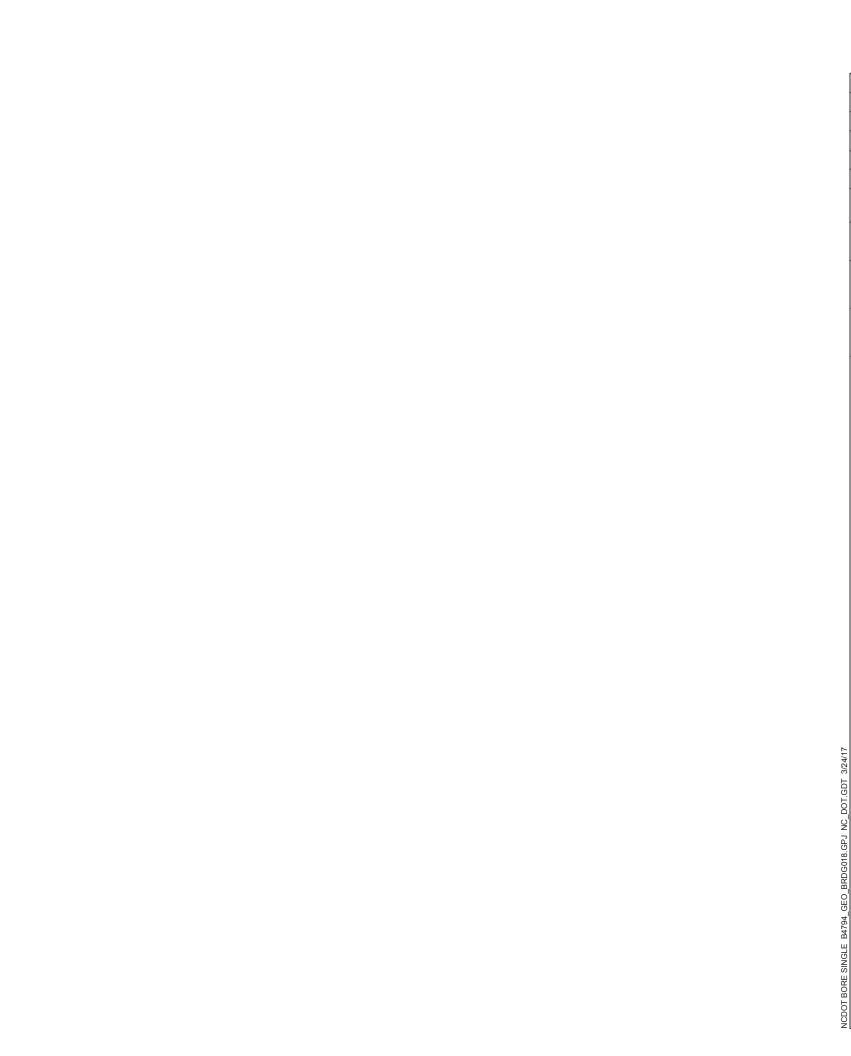












								В	ORE L	.OG					
WBS	38564	.1.1			TI	IP E	B-4794	COUNT	Y RANDO	LPH			GEOLOGIST Whitt, J.		
				lace E			18 on SR 110	07 (Lassiter N	 			's Cre	eek		WTR (ft)
_	ING NO.						ION 15+09		OFFSET				ALIGNMENT -L-	0 HR.	N/A
	LAR ELE					OTAI	L DEPTH 8.	5 ft	NORTHIN				EASTING 1,715,719	24 HR.	N/A
	L RIG/HAI		FF./DA	TE N/							METHO) Ro		MMER TYPE	N/A
DRIL	LER N	/A	1			TAR	T DATE 01/		COMP. DA		1 /		SURFACE WATER DEPTH	N/A	
ELEV (ft)	ELEV	DEPTH (ft)	0.5ft	0.5ft		0	BLO' 25	WS PER FOOT 50	- 75 100	SAMP.	/	O	SOIL AND ROCK [DESCRIPTION	
395	(ft)	-	0.5π	0.5π	0.5π		1	J0 	75 100	NO.	MOI	G	ELEV. (ft)		DEPTH (ft)
	391.4	- 0.0				Ш.							391.4 GROUND SU	JRFACE	0.0
390	390.4 - 389.4 - 388.4 - 386.4 - 385.4 - 384.4 - 383.4 -	1.0 2.0 3.0 4.0 5.0 6.0	N/A N/A N/A N/A N/A N/A N/A	2 3 5 7 9 12 12	2 5 6 8 10 13 12		8						ROADWAY EME BROWN, MOIST, MEI BROWN, MOIST, MEI BROWN, MOIST, MEI 382.9	DIUM STIFF, SIL [*] AL	Т
									50/0.2				Boring Terminated at Potentially In Wea * Stratigraphy is inter subsurface conditions	athered Rock preted based on	
	-	-											- - -		

SHEET J

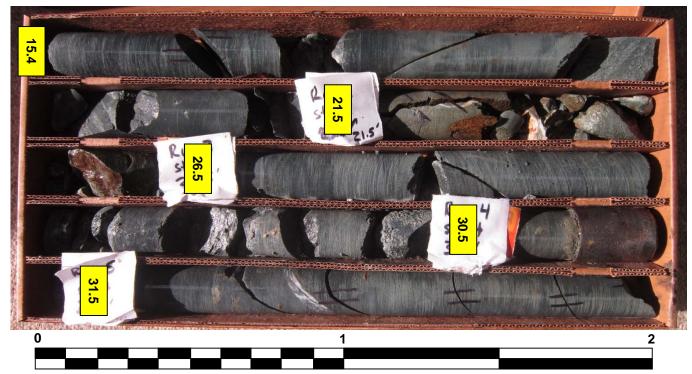
								D	UKE L	UG				
WBS	38564	.1.1			TI	P B-4794		COUNT	r RANDOL	.PH			GEOLOGIST Whitt, J.	
SITE	DESCR	IPTION	N Re	place E	Bridge	No. 18 on S	R 1107 (La	assiter M	lill Rd.) over	Bettie N	/lcGee	e's Cre	eek	GROUND WTR (ft)
BOR	ING NO.	B1- <i>A</i>	A		S	TATION 16	÷08		OFFSET 2	23 ft LT			ALIGNMENT -L-	0 HR. 2.8
COLI	LAR ELE	EV . 39	91.7 ft		TO	OTAL DEPT	H 41.5 ft		NORTHING	678,5	519		EASTING 1,715,692	24 HR. FIAD
DRILL	RIG/HAI	MMER E	FF./D	ATE F	R3763	CME-550X 86	% 11/14/2015	5		DRILL N	ИЕТНО	D H.:	S. Augers HAMM	ER TYPE Automatic
DRIL	LER B	oyce, (О.		S	TART DATE	01/18/17		COMP. DA	TE 01/	19/17		SURFACE WATER DEPTH N	'A
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	'—	OW CO	UNT 0.5ft	0 2	BLOWS PE		75 100	SAMP. NO.	MOI	L O I G	SOIL AND ROCK DESC ELEV. (ft)	CRIPTION DEPTH (f
395 390	390.7 -	- 1.0	1	2	2						M		391.7 GROUND SURFA ALLUVIAL ORANGISH BROWN AN	
	388.2	3.5	1	1	2	¶ ⁴ · · ·							_388.7 _ BROWN, CLAYEY SILT V SAND	
385	385.7 - 383.2 -	- 6.0 - 8.5	100/0.	4		• • • • • • • • • • • • • • • • • • •			100/0.4		M		ORANGISH BROWN AN BROWN, SILTY CLAY WITH WEATHERED RO WEATHERED ROCK (MET	LITTLE SAND /
380	378.2	13.5	53	47/0.2					. 100/0.7'				AUGER REFUSAL WAS EN AT 15.4' -	ICOUNTEREÓ
	376.3	Γ	100/0.						100/0.2'				376.3	15
375	_	-	60/0.0)'					60/0.0				NON-CRYSTALLINE (META-ARGILLI	
	-	-												
370	-	-											-	
	-	-												
365	_	E											_	
	-	_												
360	-	-												
,,,,	-	-											-	
	-	[RS-1				
355	_	-											-	
	-	-												
	-	-											350.2 Boring Terminated at Fleva	41
													Boring Terminated at Eleva Non-Crystalline Rock (Me	tion 350.2 ft In



									С	OF	RE L	.00	}									
WBS	38564	.1.1			TIP	B-479)4	С	OUNT	YF	RANDOL	_PH			(GEOLO	OGIS	T W	hitt, J	-		
				lace Brid	_			7 (Las	siter N	_				Gee's C	_						-	ND WTR (1
	ING NO.				_		16+08			-	FSET 2				-	ALIGN					0 HR.	2.
	LAR ELE						PTH 41			NO	RTHING					EASTI	NG	1,715	,692		24 HR.	FIA
				TE F&R3										HOD								Automatic
	LER B		; .				TE 01/1			СО	MP. DA	TE ()1/19/	17		SURFA	CE V	VATE	R DEI	HT9	N/A	
COR	E SIZE	2"		T	TOTA	AL RUI	N 26.1 f		NATA													
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	REC. (ft) %	JN RQD (ft) %	SAMP. NO.	REC. (ft) %	RQD (ft) %	L O G	ELEV. (1	ft)			DE	SCRIPT	ION A	ND RE	EMAR	(S		DEPTH
376.3	276.2	- 15 /		11.00/0.01	(0.0)	(4.0)		(4==)	(11.0)							Begin C						
375	376.3 -	- 15.4 - - - - - - 21.5 -	5.0	N=60/0.0' 3:10/1.3 3:51/1.0 2:13/1.0 4:07/1.0 2:56/1.0 3:37/0.8 2:26/1.0 3:07/1.0	(2.9) 48% (1.5) 30%	(1.2) 20% (0.5) 10%		68%	(11.3) 43%		376.3 	F	FRACT	URING, AT 21.5	, FRE , HAR 5': VE AT		ATHEI MODEF GHT T FRESI SE TO	RING, RATEL TO SLI H WEA	VERY Y HAR IGHT V ATHER	CLOSE D, MET VEATHE ING		
365	365.2 - - - 361.2 -	- - - - 30.5	4.0	2:54/1.0 5:50/1.0 2:43/1.0 2:59/1.0 8:13/1.0 15:30/1.0	(2.8) 70%	(0.9) 23%					- - - - -											
360	360.2	- - -	5.0	4:37/1.0 2:25/1.0 2:34/1.0 2:49/1.0 2:56/1.0	(0.6) 60% (4.9) 98%	(0.4) 40%/ (4.3) 86%	RS-1	<u></u>			- - - -											
355	350.2	- - -	5.0	2:49/1.0 2:31/1.0 3:10/1.0 3:07/1.0 2:57/1.0 4:06/1.0	(5.0) 100%	(5.0) 100%					 - - - - 350.2											4
																(I	Meta-≀	argillite	3)		talline Rock	

CORE PHOTOGRAPH REPLACE BRIDGE 18 ON SR 1107 OVER BETTIE MCGEE'S CREEK

B1-A BOX 1 OF 2: 15.4 - 33.1 FEET



APPROXIMATE SCALE IN FEET

B1-A BOX 2 OF 2: 33.1 - 41.5 FEET



APPROXIMATE SCALE IN FEET



SHEET 1G

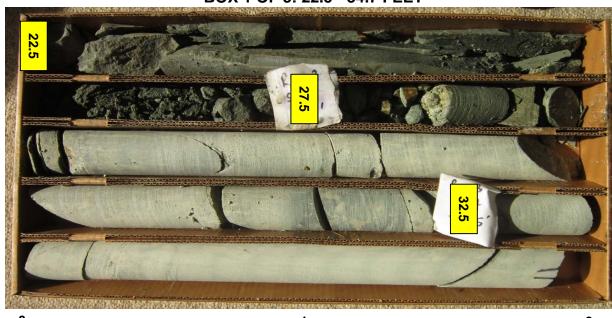
								ORE L				T		
	38564					P B-4794		/ RANDOL				GEOLOGIST Whitt, J.	T	
				olace E	<u> </u>	No. 18 on SR 1107 (I				/lcGee	e's Cr		┥	D WTR (ft)
	NG NO.				-	TATION 16+22		OFFSET				ALIGNMENT -L-	0 HR.	12.3
	AR ELI					OTAL DEPTH 47.5 f		NORTHING				EASTING 1,715,724	24 HR.	FIAD
DRILL	RIG/HA	MMER E	FF./DA	TE F	&R3763	CME-550X 86% 11/14/20					D H.	S. Augers HAMN	IER TYPE	Automatic
DRIL	LER B	oyce, (C.		S	TART DATE 01/16/1	7	COMP. DA	_	_	<i>a</i>	SURFACE WATER DEPTH N	/A	
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	0.5ft	0.5ft	UNT 0.5ft	4	PER FOOT	75 100	SAMP. NO.	MOI	O G	SOIL AND ROCK DES	CRIPTION	DEPTH (I
405		+										_		
400	401.6	1.0	14	7	5					D		- 402.6 GROUND SURF - 401.6 0.4' ASPHALT, 0.6' GR - 400.4 ROADWAY EMBAN	AVEL BASE	0
100	399.1	3.5	2	1	2	•3 · · · · · · · ·				М		GRAY AND LIGHT BROWN GRAVEL (ROCK FRA RED, SILTY SANDY CLAY	, SILTY SAI GMENTS)	
395	396.6 - 394.1	6.0 8.5	2	3	4	7				М				
•		1 0.3	13	16	11	• • • • • • • • • • • • • • • • • • •				M		- ALLUVIAL - RED, SILTY SAND' - 390.9	CLAY	11
390	389.1	13.5	WOH	2	2							RESIDUAL RED, SILTY CL AT 14.1': WITH LITTLE	AY	
385		Ŧ				 	: : : : -	: : : : 				GRAVEL-SIZED ROCK F 385.9 WEATHERED R	RAGMENT	
	384.1	18.5	83	17/0.0				. 100/0.5				WEATHERED ROCK (MET HARDER DRILLING WAS N	A-ARGILLI	
380	380.1	22.5	60/0.0	7				60/0.0	,			380.1 NON-CRYSTALLIN	ROCK	22
		Ī										(META-ARGILL	TE)	
375	-	<u> </u>										_		
370	-	‡										- - -		
		‡										- - -		
365	- -	‡							RS-2			- - -		
360	-								R3-2			- - -		
	-	<u> </u>										- - -		
	-											355.1 Boring Terminated at Eleva Non-Crystalline Rock (M	ition 355.1 f	47 ft In
	-											· · · · · · · · · · · · · · · · · · ·		
	-	‡										- - -		
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	- - -	<u> </u>										<u>-</u>		
		<u> </u>										- - -		
	<u>-</u> -	‡										_ - -		
	:	<u> </u>										· ·		



									C	OF	RE L	OG				
WBS	38564	4.1.1			TIP	B-479)4	С	OUNT	Y R	ANDOL	PH	GEOLOGIST Whitt,	J.	1	
				olace Brid	-			7 (Las	siter N	_		Bettie McGee's Cre	1		4	ID WTR (ft)
BOR	ING NO	. B1-B	1				16+22			-	FSET		ALIGNMENT -L-		0 HR.	12.3
COL	LAR EL	EV . 40)2.6 ft		TOT	AL DE	PTH 47	.5 ft		NO	RTHING	678,541	EASTING 1,715,724		24 HR.	FIAD
DRILI	L RIG/HA	MMER E	FF./DA	TE F&R3	763 CM	E-550X	86% 11/14	1/2015				DRILL METHOD H.S	S. Augers	HAMN	IER TYPE	Automatic
DRIL	LER B	Boyce, C). 		STAI	RT DA	TE 01/1	6/17		CO	MP. DA	FE 01/17/17	SURFACE WATER DE	PTH N	/A	
COR	E SIZE	2'			1		N 25.0 f			Ь.						
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	REC. (ft) %	JN RQD (ft) %	SAMP. NO.	REC. (ft) %	ATA RQD (ft) %	L O G	ELEV. (f		DESCRIPTION AND REMAR	RKS		DEPTH (ft)
380.1													Begin Coring @ 22.5	ť		
380	380.1	22.5	5.0	N=60/0.0 4:34/1.0 3:04/1.0 8:37/1.0 3:11/1.0 2:24/1.0	(3.0) 60%	(1.2) 24% (2.0)		(20.7) 83%	(15.2) 61%		380.1	VERY CLOSE FRAC	NON-CRYSTALLINE RO ESH TO VERY SLIGHT WE ETURING, VERY HARD TO RATELY CLOSE TO VERY GSI = 75	ATHERING HARD, ME	TA-ARGIL	LITE
370	370.1	32.5	5.0	4:23/1.0 2:54/1.0 2:54/1.0 3:26/1.0 2:44/1.0 2:24/1.0	60% (4.9) 98%	(3.7)					- - - -					
365	365.1	37.5	5.0	2:35/1.0 2:30/1.0 2:55/1.0 3:00/1.0 2:01/1.0		(4.3)	RS-2	_			- - - -					
360	360.1	42.5	5.0	1:58/1.0 1:59/1.0 2:19/1.0 6:24/1.0 2:55/1.0 3:08/1.0	(4.8) 96%	(4.0) 80%					- - - -					
	355.1	47.5		3:11/1.0 3:16/1.0						3	355.1	Davis a Tamaia	ated at Elevation 355.1 ft In N	In Count	lias Dask	47.5
													(Meta-argillite)			

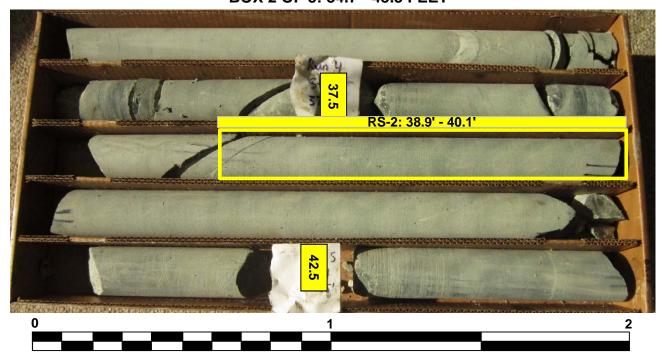
CORE PHOTOGRAPH REPLACE BRIDGE 18 ON SR 1107 OVER BETTIE MCGEE'S CREEK

B1-B BOX 1 OF 3: 22.5 - 34.7 FEET



APPROXIMATE SCALE IN FEET

B1-B BOX 2 OF 3: 34.7 - 43.3 FEET

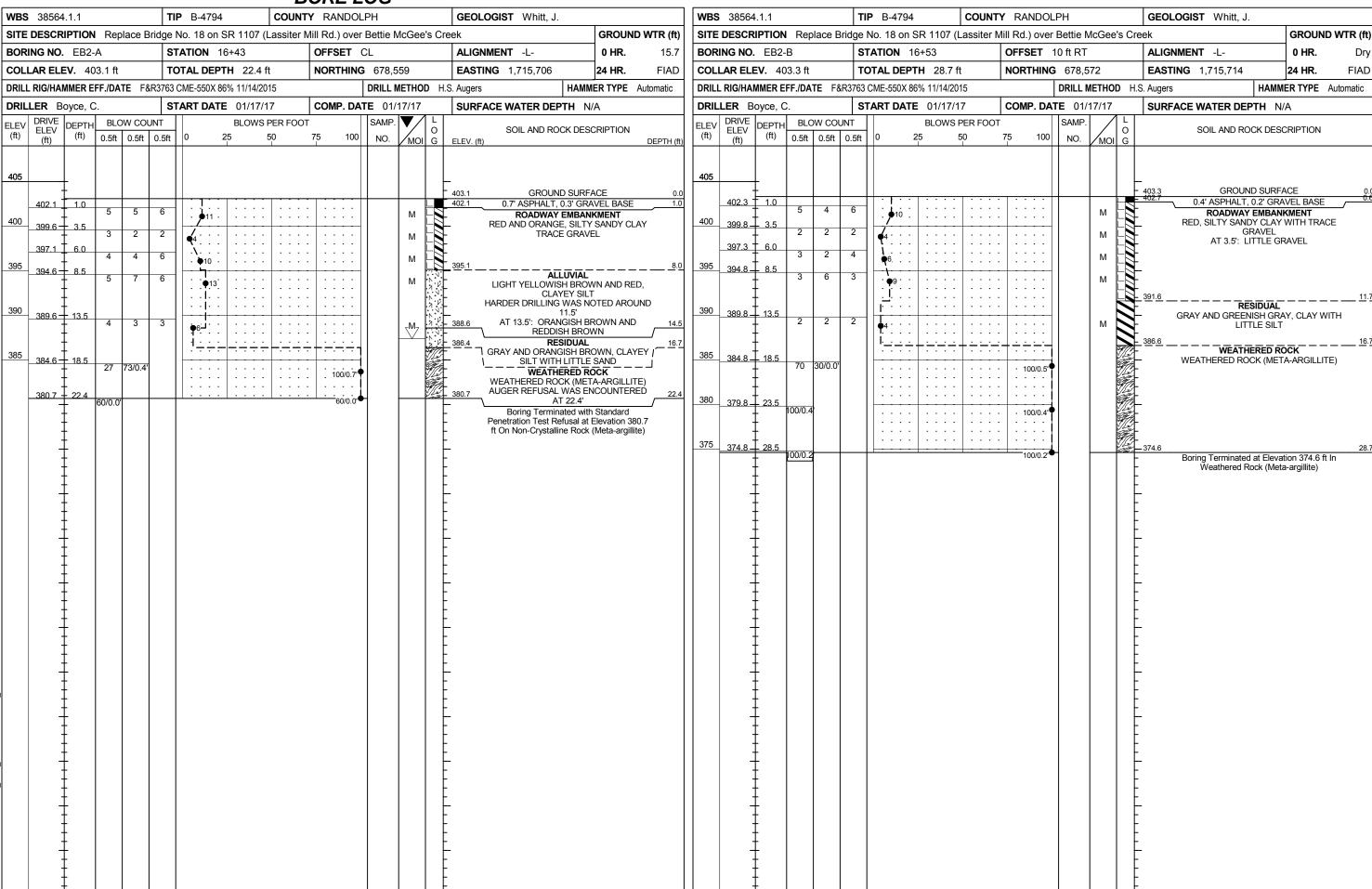


APPROXIMATE SCALE IN FEET

B1-B BOX 3 OF 3: 43.3 - 47.5 FEET



APPROXIMATE SCALE IN FEET





									<u>B</u>	ORE L	<u> LOG</u>					
WBS	38564.1.	1			ті	P B-47	94		COUNT	Y RANDO	LPH			GEOLOGIST D. Racey		
SITE	DESCRIPT	ION	Rep	lace E	ridge	No. 18 o	n SR	1107							GROUN	ID WTR (ft)
BORI	NG NO. L	16	50L		ST	TATION	16+5	50		OFFSET	30 ft LT			ALIGNMENT -L-	0 HR.	5.0
COLL	AR ELEV.	39	1.9 ft		TO	OTAL DE	PTH	9.3 ft		NORTHIN	G 678,5	559		EASTING 1,715,675	24 HR.	FIAD
DRILL	RIG/HAMME	ER EF	F./DA	TE F8	R5785	CME-55	85% 2	2/17/2016	;		DRILL I	ИЕТНО	D H	.S. Augers HAMI	IER TYPE	Automatic
DRILI	LER D. Ti	gnor			S	TART DA	ATE .	06/27/1	6	COMP. DA	ATE 06/	27/16		SURFACE WATER DEPTH	I/A	
ELEV (ft)		PTH ft)	BLC 0.5ft	0.5ft		0	25		PER FOOT 50	75 100	SAMP. NO.	MOI	L O G	SOIL AND ROCK DES	CRIPTION	DEPTH (ft
395														_ -		
390	391.9	0.0	1	3	6	. •9 .					-	М		391.9 GROUND SURF ALLUVIAL Red-Brown to Dark Brown	Clayey Fin	0.0 e to
385	388.4 + 3	3.5	4	4	5	. .	:				SS-4	21%		Coarse Sandy SILT (A-4) w from 0.0'-1.5	ith Trace R	oots
	383.4 8	3.5	52	48/0.3						100/0.8	•		477			9.3
	‡													Boring Terminated at Elevi Weathered Rock (META	ation 382.6	
	‡													Note: SURFICIAL ORGANIC SC	OILS = 0.0'-(0.2'
	‡													-		
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REPLACE BRIDGE 18 ON SR 1107 OVER BETTIE MCGEE'S CREEK

ROCK TEST RESULTS												
				DEPTH	LENGTH	DIAMETER	AREA	VOLUME		UNIT WEIGHT	COMPRESSIVE	
BORING	SAMPLE NO.	STATION	OFFSET	INTERVAL (ft)	(in.)	(in.)	(sq. in.)	(in. ³)	(cf)	(pcf)	STRENGTH (psi)	TESTING METHOD
B1-A	RS-1	16+08	23FT LT	33.4 - 34.3	4.49	1.98	3.079	13.825	0.008	174.9418	6,080	ASTM D-7012-10 METHOD C
B1-B	RS-2	16+22	13FT RT	38.9 - 40.1	4.67	1.99	3.110	14.525	0.008	173.5793	6,466	ASTM D-7012-10 METHOD C

SITE PHOTOGRAPHS BRIDGE NO. 18 OVER BETTIE MCGEE'S CREEK ON SR 1107



View of SR 1107 looking north.



View of Bettie McGee's Creek looking south.